No. 43. October 1, 1958.

FISH AND WILDLIFE MANAGEMENT REPORT

PROVINCE OF ONTARIO

DEPARTMENT OF LANDS AND FORESTS

Division of Fish and Wildlife

Hon. J. W. Spooner
Minister

F. A. MacDougall
Deputy Minister

T A B L E O F C O N T E N T S

No. 43 October 1, 1958

	Page
Bear Investigation Programme, Swastika District. - by N. D. Patrick	1
Accuracy of Beaver Transects. - by R. Boultbee	5
Spring Marten Trapping, Gogama District, 1958. - by B. G. Johnson	14
Chapleau District Marten Research, April 24th - May 14th, 1958. - by V. Crichton	16
Live Fisher Trapping, Pembroke District, 1958. - by W. R. Catton	17
Predator Control - Wolf Poisoning, Port Arthur District, 1957-58. - by C. A. Rettie	20
Raccoon Harvest, Lake Simcoe District, 1957-58. - by J. S. Dorland	23
Mourning Dove Road Count, Lake Erie District, 1957. - by L. J. Stock	24
Wetland Work in New York State. - by G. F. Boyer	25
Waterfowl Breeding Ground Survey in Accessible Areas of Sioux Lookout District, 1958. - by D. W. Simkin	28
Waterfowl Census, Whitefish Lake, Port Arthur District. - by Peter Nunan	32

	Page
Lake Erie District Hunter Bag Check. - compiled by L. J. Stock	35
Kenora District Creel Census, 1957. - compiled by P. Graham	45
A Creel Census of the Gull Bay Area, Port Arthur District, 1957. - by C. A. Rettie	49

(THESE REPORTS ARE FOR INTRA-DEPARTMENTAL INFORMATION AND NOT FOR PUBLICATION)

BEAR INVESTIGATION PROGRAMME, SWASTIKA DISTRICT

by
N. D. Patrick

Over the past few years there has been a very great increase in the interest of hunters in bear hunting. If this trend continues, there is a strong possibility of bear becoming an important game animal in the Swastika District, if not in the whole province.

Bear are presently considered as "nuisance" animals in Ontario, and are not protected at any season. Bounties are paid on bear shot by farmers in agricultural areas. Except for bounty records, no information on abundance, annual kill, or population levels is available.

If we are to manage this species (and we will be called upon to do so if it reaches game status), then we must know more about it. For this reason, the present project is being established.

Bear Investigation Project #I

Objective:-

To collect information on the bear population in the Swastika District and to attempt to assess its value as a game animal.

Immediate Goal:-

There are two important and separate phases to the objective outlined above. Hence, two projects are suggested.

Project I A:-

A project aimed at assessing the spring bear hunt in terms of numbers of hunters, tourist value, and numbers of bears killed.

Project I B:-

A project aimed at collecting biological data available from bears killed in an attempt to determine reproductive rate and age and sex composition of the population.

Project I A

Procedure:-

(a) Arrange to have all tourist outfitters contacted to determine the number of spring bear hunters accommodated.

(b) Prepare a questionnaire form similar to that completed by moose hunters for use of spring bear hunters.

(c) Attempt to have each bear hunter complete a questionnaire form.

(d) Analyse the data resulting from the above.

Basic Work Plan:-

(a) Assistant Senior Conservation Officer to carry out Project I A.

(I) Prepare questionnaire.

(II) Distribute to Conservation Officers.

(III) Collect completed forms and analyse, with assistance from Biologist.

Project I B

Procedure:-

(a) Investigate literature available on bear.

(b) Contact Maple re information required.

(c) Contact H. C. Black, Cornell University, N.Y. State, regarding exchange material.

(d) Prepare collection of biological data from bear kills.

(e) Analyse data in conjunction with (b) & (c) above.

Basic Work Plan:-

(a) Biologist to establish project and carry out preliminary work.

(b) District Fish and Wildlife staff to be instructed and brought into project as it develops.

(c) Data to be accumulated and analysed before next spring hunt.

Project I B

Preliminary Development:-

Investigation of the available literature and consultation with research people at Maple indicate that very little information is available about black bears. Mr. Hugh Black, currently conducting

a black bear research programme in New York State, was contacted and arrangements made for an exchange of material and information. Thus far, the following method of handling bear is suggested.

(1) Obtain all material possible from every bear kill available.

(2) The following outline should be followed in collecting data:-

Date of kill.
Township of kill.
Type of kill (bounty, hunter, etc.)
Weight of whole animal.
Weight of animal without hide.
Weight of animal without insides (rough dressed).
Measurements (width and length) of front paw pads.
Measurements (width and length) of canine teeth.
Cursory examination of stomach contents.
Report of bear's activities at time of kill.
Report of cubs or other bears with specimen at time of kill.
Collection of skull and reproductive organs.

ONTARIO

DEPARTMENT OF LANDS AND FORESTS

BEAR HUNTERS QUESTIONNAIRE

Licence # _____ Address _____
(No.) (Street)

Name _____ _____
(Town) (Prov. or State)

Phone No. _____

Did you kill a male _____ Female _____ Cub _____

In what areas did you hunt? _____

Where did you kill your bear? _____

On what date did you kill your bear? _____

What time of day did you kill your bear - Morning _____
Afternoon _____
Evening _____

Approximate weight of bear killed _____

How many days did you hunt bear? _____

How many bear did you see? - Adults with no cubs _____
Females with cubs _____

Comments on present bear season _____

_____

Comments on guiding services _____

_____

How much money did you spend for travel? _____

Accommodations, meals, guides, refreshments, licence, etc. $_____

How much money did you invest this year in bear hunting equipment such as guns, clothing, etc. $_____

THANK YOU!

ACCURACY OF BEAVER TRANSECTS

by
R. Boultbee

In May, 1958 a paper was circulated dealing with the design of a beaver house census based on trappers' counts. The present paper similarly treats the 1957 Fort Frances Beaver Transect to attach confidence limits and consider ways of improving the survey. The beaver transect is a much better source of information than trappers' counts.

The 1957 Fort Frances Beaver Transect was two hundred and forty-eight miles long, laid out in four lines, in accordance with Mr. Standfield's method. The results were placed on a map at two miles to an inch and from this map the basic data for this study were taken. Appendix one lists the number of houses in each successive inch of line on the map.

The first problem is the choice of a satisfactory sampling unit. The variability in house count from unit to unit is the basis of the confidence limits we are looking for. If the sampling units are small some will show no house count. If they are made successively smaller the pile-up of units with no house count will introduce serious distortion. Evidently there is a minimum unit that avoids zero house counts or at least brings an acceptable proportion of such counts.

Figure one illustrates the effects of different sample unit sizes. The lowest distribution in the figure is that obtained by taking four inches at a time from Appendix one. There is a central tendency and there are no units with zero counts. Proceeding upward distributions are shown based on successively smaller units. Three inch units appear to be acceptable. Two inch units show some accumulation of zero counts. One inch units show such a distortion from piled-up zero counts that they are of no use. Thus three inch units are the shortest that can be used. In this paper four inch units are used to retain a safety margin.

Using four inch units and applying two refinements explained farther on the following confidence limits were obtained for the 1957 Fort Frances Beaver Transect:

70 percent confidence limits = ± 10.7%
80 percent confidence limits = ± 13.3%
90 percent confidence limits = ± 17.3%
95 percent confidence limits = ± 20.8%
99 percent confidence limits = ± 28.3%

In effect the 90 percent confidence limits, for instance, say that if similar surveys were run for a century only ten of the one hundred surveys would vary by more than 17.3 percent from the true house count. Under the circumstances the accuracy of the transect is quite good.

Stating the confidence limits of the transect might be considered an end in itself, but it would be a mistake not to use the results to improve future surveys. For instance we should find the result of using sampling units larger than the minimum. Figure two shows the results of grouping the data of Appendix one in larger and larger units. Some play of chance is seen in the location of points but the placing of the curve is clear. Units shorter than three inches have a pile-up of zero counts which causes the standard error to decrease, giving a false result. From three inches to thirteen inches the standard error is constant. For units more than thirteen inches long a new type of distortion is introduced. This enlargement of the standard error is caused by fewness of sampling units. The transect was long enough to supply only seven units fourteen inches long. If the transect had been longer this form of distortion would not have appeared until a still longer unit was used.

An important principle is thus found. The size of sampling unit, over a wide range, does not affect the accuracy of the survey. The key to the principle is that a certain total area of samples will give the same result whether taken in large or small units. There are practical limits however, in that units should not be so small as to accumulate zero house counts nor so large as to be few in number. The optimum range can be found by trial and error.

The optimum range of sample unit size gives considerable freedom of choice. If the designer of the census is using a random sample rather than a transect he can shoose a unit size convenient for examination from the air according as he favours orbiting or consecutive strips. He can also compromise with the need to save flying time between units by making them larger.

No matter what design is used it will be found that a very large area will have to be surveyed to reduce the confidence limits notably. For instance to reduce the 90 percent confidence limits of the 1957 Fort Frances Beaver Transect from 17.3% to 10.0% it would be necessary to increase the length of the transect from two hundred and forty-eight miles to seven hundred and sixteen, almost a three-fold increase. Because of the large area required in the census it is of utmost importance to eliminate extraneous sources of variance. This was explained in the previous paper based on trappers' counts and it was shown therein that a very significant reduction in sampling error could be had by eliminating the effect of "miles of creek per sample unit".

The census taker will profit by measuring any feature shown to contain significant variability. Forest types may be found significant but the writer has not yet tested them. Land types and forest types are probably related. The four lines of the 1957 Fort Frances Beaver transect showed obvious variations which may be connected with land types or forest types and this variance was eliminated in arriving at the confidence limits given earlier. Lines one and three were taken entire as they were quite short. Lines two and four were each broken in halves. This gave six sections of transect requiring five degrees of freedom. The following table of

variance analysis results:

Variance	Sums of Squares	Degrees of Freedom	Mean Squares	Variance Ratios	Significance
Between Lines	152.27	5	30.45	3.49	Better than 5% pt.
Residual	209.60	24	8.73		
	361.87	29	12.48		

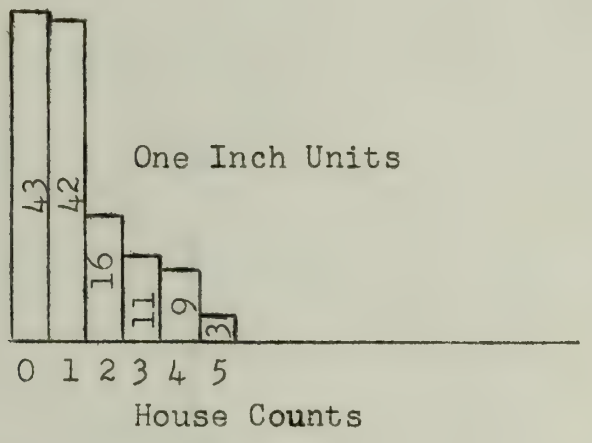
The principle of segregating extraneous variance is explained schematically in Appendix two.

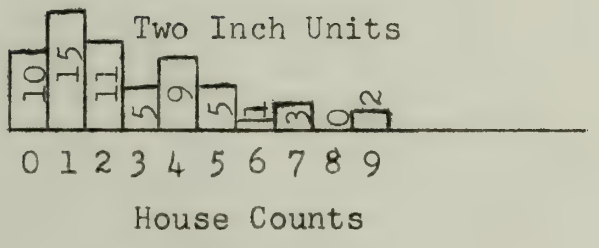
As a result of segregation the sampling variance was reduced from 12.48 to 8.73. A correction for finite population is made by multiplying 8.73 by (1-a/A) where "a" is the total area of the sample and "A" is the total area of Fort Frances District (7,192 square miles). In this case the correction was too small to be of any account.

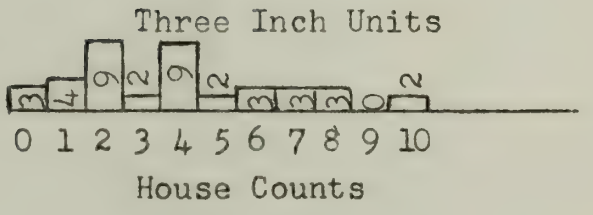
Transects of random samples lend themselves to the accumulation of annual data. The effects of this procedure are gradually to broaden the basis of the survey and stabilize the confidence limits. Extraneous variance between successive years' censuses will be eliminated like that due to "miles of creeks" or "sections of lines" but unless there were a significant change in the population this particular segregation would not be necessary. Conversely if a significant change in population numbers were to take place it would be proven by segregation.

Appendix three is meant to facilitate the design of future surveys in Fort Frances District. It is only a guide and should be useful in other districts where the average house count is about one per square mile. Future surveys will in turn modify the appendix. It is drawn up on the basis of sampling units of ten square miles but can be adapted to other unit areas. For instance, for sample units of five square miles, the sample number should be doubled. The optimum range must be kept in mind, and enough units must be included to allow degrees of freedom for segregating extraneous variance.

FIGURE I - Distributions with units of various length showing distortion with small units.







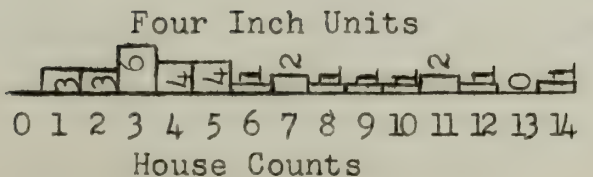


FIGURE II - Standard Error (Per Cent) of the Average House Count Per Unit.

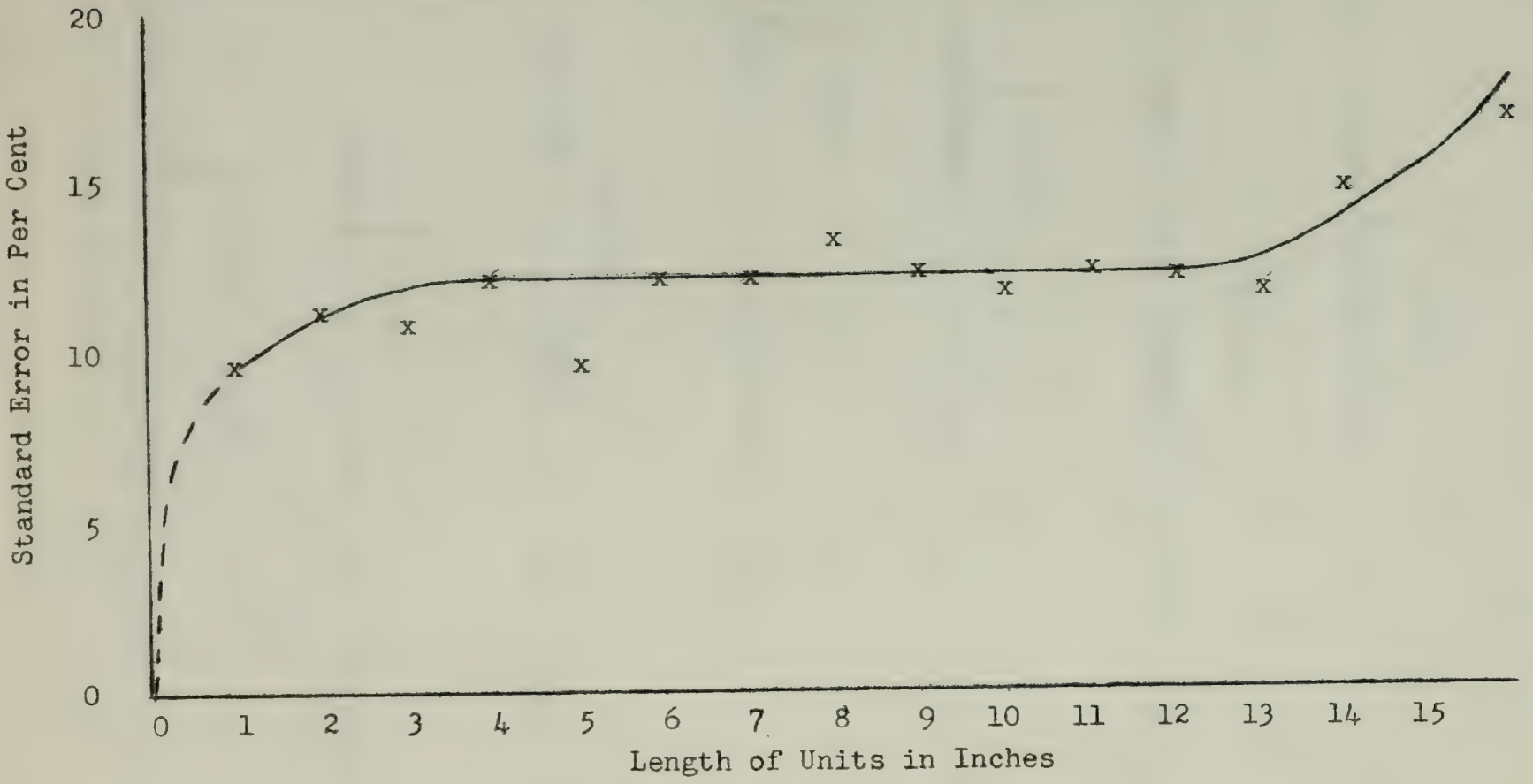
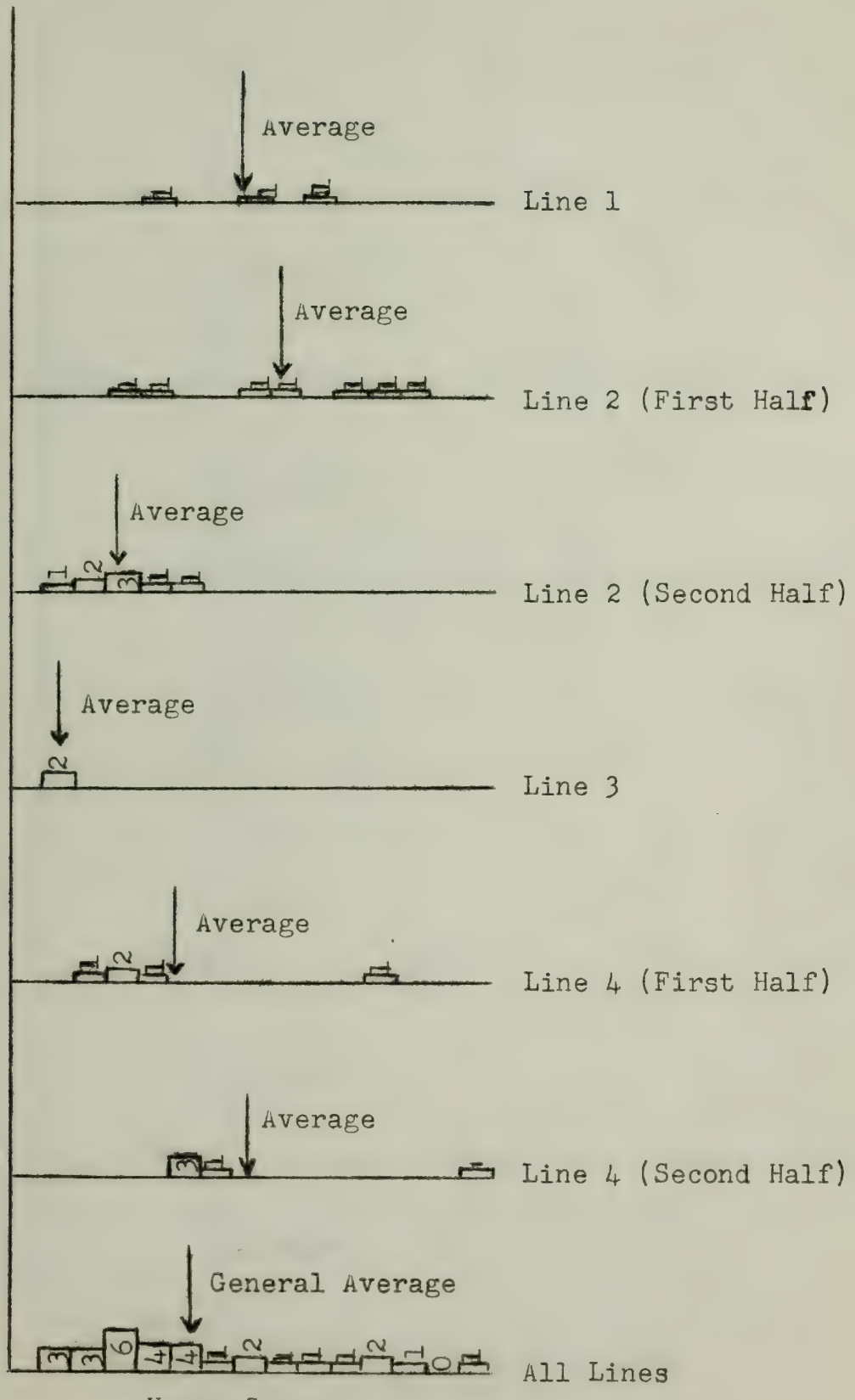
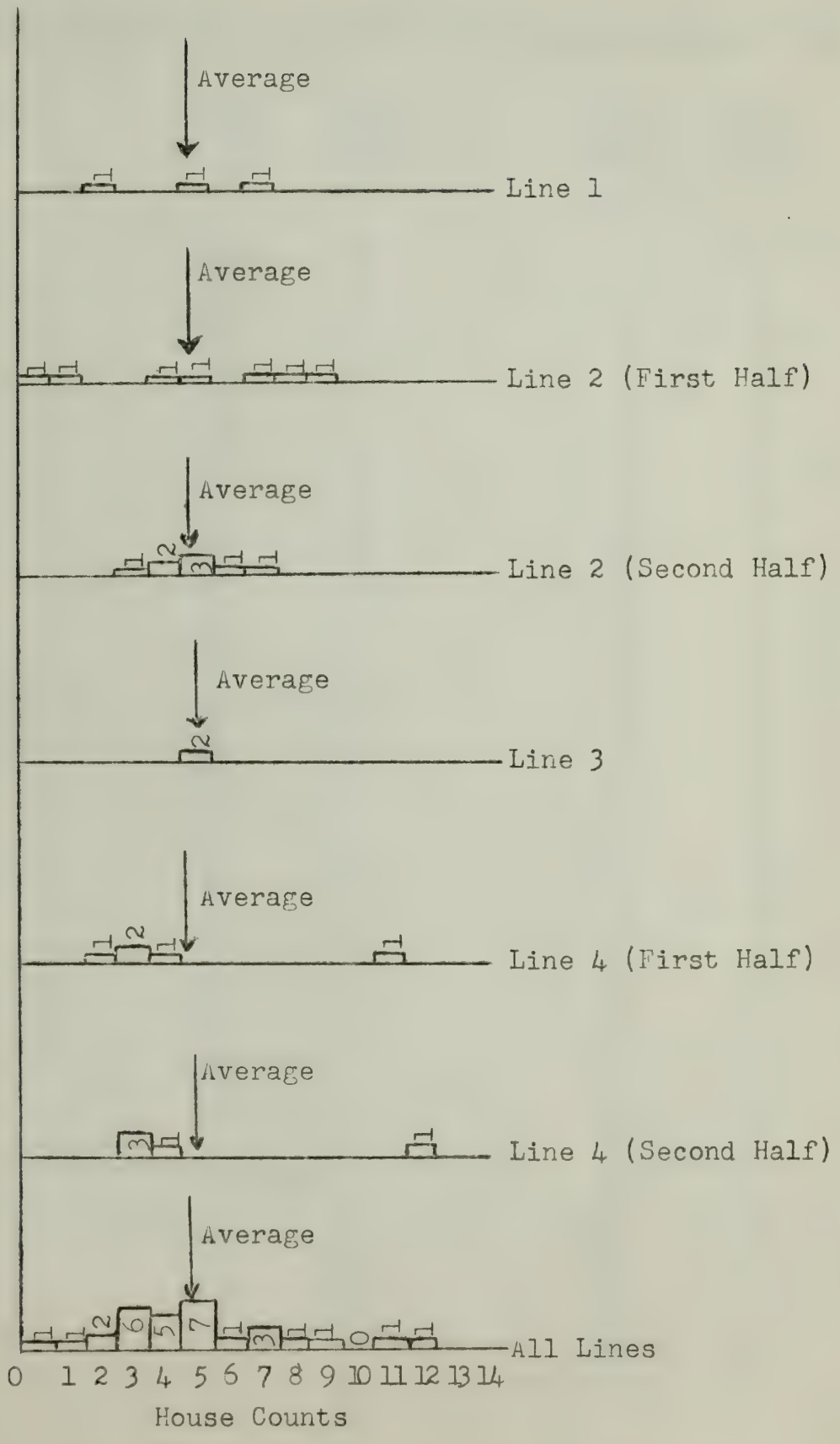


FIGURE III -



House Counts

FIGURE IV -


Average
Line 1
Average
Line 2 (First Half)
Average
Line 2 (Second Half)
Average
Line 3
Average
Line 4 (First Half)
Average
Line 4 (Second Half)
Average
All Lines
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
House Counts

APPENDIX ONE - Basic Data

House Counts in Successive Inches of Line on the Transect Map

Inch Number	House Count
Line One	
1	1
2	3
3	4
4	1
5	0
6	0
7	2
8	2
9	1
10	1
11	1
12	4
13	0
Line Two	
1	1
2	0
3	5
4	2
5	1
6	1
7	4
8	5
9	1
10	0
11	1
12	1
13	1
14	4
15	3
16	4
17	1
18	2
19	1
20	0
21	3
22	1
23	1
24	2
25	1
26	3
27	3
28	3
29	1
30	0
31	1
32	1
33	2
34	1
35	0
36	0
37	1
38	0
39	2
40	0
41	0
42	0
43	1
44	0
45	3
46	2
47	0
48	0
49	0
50	1
51	1
52	0
53	0
54	0
55	1
56	3
57	0
58	2
59	0
60	0
61	0
Line Three	
1	0
2	0
3	0
4	1
5	0
6	0
7	1
8	0
Line Four	
1	0
2	1
3	1
4	0
5	2
6	0
7	1
8	0
9	3
10	4
11	2
12	2
13	3
14	0
15	0
16	0
17	1
18	1
19	1
20	1
21	0
22	4
23	1
24	0
25	1
26	3
27	2
28	0
29	1
30	1
31	2
32	1
33	4
34	1
35	4
36	5
37	2
38	2
39	0
40	1
41	0
42	0

APPENDIX TWO - Elimination of Variance Between Sections of Line.

The distributions of house counts on the six sections of line is shown in fugure three. The average for each distribution is shown with an inverted arrow. The six distributions are centred around six different averages and when they are totalled as at the bottom the variance between averages is included. The distribution at the bottom of figure three is the same as that at the bottom of figure one. In figure four the same distributions are shown shifted laterally so that all six averages are aligned with the general average. In this manner the variance between averages, or in other words between sections of line, is removed. When the adjusted distributions are totalled as at the bottom of figure four there is no inclusion of variance between sections of line. If the sum of squares of the deviations is worked out for this last total distribution it will be found to be 210.17 corresponding to the more exact figure of 209.60 in the table of variance analysis.

APPENDIX THREE - Confidence Limits in Per Cent for Sample Numbers from 14 to 30 (Size of Sampling Unit is 10 Square Miles).

Sample Number	70% C. L.	80% C. L.	90% C. L.	95% C. L.
14	11.8	14.9	19.9	24.6
15	11.4	14.3	18.9	23.4
16	10.9	13.7	18.1	22.3
17	10.6	13.2	17.4	21.4
18	10.2	12.8	16.8	20.5
19	9.9	12.4	16.2	19.8
20	9.6	12.0	15.8	19.2
21	9.4	11.7	15.3	18.6
22	9.1	11.4	14.9	18.1
23	8.9	11.1	14.5	17.6
24	8.7	10.8	14.1	17.1
25	8.5	10.6	13.8	16.8
26	8.3	10.4	13.5	16.4
27	8.2	10.2	13.3	16.0
28	8.0	10.0	13.0	15.7
29	7.9	9.8	12.7	15.4
30	7.7	9.6	12.5	15.1

For example if 90% confidence limits of 13.0% are satisfactory it will be necessary to use 28 randomly placed areas, each 10 square miles in area. This is a total of 280 square miles to be censused. If it is desired to use a transect instead of random areas the transect should be designed to cover an area of 280 square miles.

Note that variance between broad land conditions must be eliminated to obtain the above accuracies. Five degress of freedom were allowed for this purpose in constructing the table. In the body of the report this type of variance was defined as variance between sections of transect lines (appendix two).

SPRING MARTEN TRAPPING, GOGAMA, 1958.

by
B. G. Johnson

During the month of April, 1958, twelve traps were set on the Gogama experimental trapline for the purpose of catching marten. The animals were required for study with regard to when the females give birth to their young, and how many are in a litter. Collection of material was begun by the Chapleau District in 1957, and this year this District was asked to assist.

On April 10, 1958, single traps were set at twelve stations originally used on the experimental trapline. These locations, numbered from 117 to 128, run from the east end of Eastman Lake, south towards Akweskwa Lake and are approximately 300 yards apart in heavy evergreen forest. Pieces of a beaver carcass, procured from a trapper at Foleyet were used as bait. Five marten were caught of which only one was a female. She was not carrying kittens, and was not milking. It seems reasonable to believe that at this time of year the females that are carrying young do not travel as far as the males. The much larger percentage of males caught seems to bear this out. The traps were checked at three day intervals; the weather for the most part was warm and sunny. When the traps were set there was up to two feet of snow in the bush but by April 27th, when they were sprung, there were only a few scattered patches.

The whole carcass of the female marten and the heads and reproductive organs of the males were sent to Maple, as were the dried pelts. The accompanying table shows the trapping record in detail.

Location of Trap	April 12/58 Mild & Sunny	April 15/58 Mild & Sunny	April 19/58 Mild & Sunny	April 21/58 Mild & Sunny	April 24/58 Mild & Cloudy	April 27/58 Mild & Sunny
#117	-	Male Marten	-	--	-	-
#118	Male Marten	Canada Jay	-	-	Canada Jay	Red Squirrel
#119	-	Trap Sprung	Canada Jay	Male Marten	-	-
#120	-	-	-	-	-	-
#121	-	-	-	-	Trap Sprung	-
#122	Female Marten	Canada Jay	Male Weasel	Rabbit	-	-
#123	-	Red Squirrel	-	Canada Jay	-	Trap Sprung
#124	-	-	Male Marten	-	Trap Sprung	-
#125	-	Red Squirrel	Red Squirrel	-	-	Red Squirrel
#126	-	Red Squirrel	-	-	-	-
#127	-	Male Weasel	-	-	-	-
#128	3 toes of a marten	-	-	Trap Sprung	-	-

CHAPLEAU DISTRICT, MARTEN RESEARCH, APRIL 24th - MAY 14th, 1958

by
V. Crichton

Marten trapping for the purpose of trapping pregnant marten for research purposes was carried out in the Chapleau District from April 24th to May 14th, 1958.

Trapping took place on Crooked Lake in the Township of Leeson and Brackin and on the Portage between Crooked Lake and Missanabie Lake in Lesson Township, situated in the Chapleau Crown Game Preserve with the assistance of Conservation Officer H. Tuvi of Missanabie.

During this period of trapping, 10 marten were trapped consisting of eight males and two females.

Two female marten apparently being young adults and not having reached the breeding age and four male marten were released from the traps.

The skulls, bacula and reproductive tracts were collected and preserved and forwarded to Division of Research at Maple.

The following is a table of dates of capture:

Number	Sex	Date of Capture	
1	male	Apr. 25th, 1958	
2	female	May 2nd, 1958	
3	male	May 2nd, 1958	
4	male	May 2nd, 1958	
5	male	May 2nd, 1958	Released
6	male	May 7th, 1958	
7	male	May 9th, 1958	Released
8	male	May 12th, 1958	Released
9	male	May 12th, 1958	Released
10	female	May 13th, 1958	

LIVE FISHER TRAPPING, PEMBROKE DISTRICT, 1958.

by
W. R. Catton

Introduction

This report covers the live fisher trapping project carried out during February and March, 1958, for a total of 13 days.

The area trapped was located in Guthrie and Clancy Townships in the south eastern part of Algonquin Park. This area was chosen because of its accessibility via the Shoosplin-Woods Limited private road.

Bed space was supplied free of charge by the company. Meals were supplied at 75 cents each.

Procedure

Prior to actual trapping, baits were first put out on February 15th. The use of beaver carcasses for this baiting was found very effective; in particular those received from the Division of Research which were very strong smelling. At one trapsite a wolf carcass was used as bait and it too proved very successful. This backed up the statement of Park Ranger J. Burchat, who claimed fisher were so plentiful that they had more than once eaten wolves which were caught in snares, in the area.

Baits were placed at roughly half mile intervals along the road and not more than 300 yards off it. Inspection of the baits took place periodically and on February 25th nine traps were set out.

During the 13 days of trapping the number of traps in use varied from 9 to 20. On occasion up to three traps were put out at one bait site, depending on the abundance of tracks. A total of 19 fisher and one marten were taken, however, one fisher escaped and the marten was released later.

Traps were looked at once each day in the morning although on one occasion at a particularly good site we were plagued with squirrels closing the trap, so a late afternoon inspection to insure the trap wasn't closed for the night produced a fisher which had entered the trap since morning inspection.

During the period of trapping the weather for the most part was unseasonally mild as can be noted on the tables shown. With the thawing of the carcass baits we found that fisher were able to tear apart these carcasses and make off with them. As a result, carcasses had to be wired to a tree, frequently out of reach and above the baited trap.

Cost Per Fisher

In compiling the cost per fisher we have included the cost of operating a department vehicle and the wages of two conservation officers. Excluding these two items the cost per animal is less than $3.00.

Gas for operation of Department vehicle	$ 35.72
Meals for two men @ .75¢	39.75
Wages - two Conservation Officers - 13 days	306.63
Case of dog food and 2 oz. oil of Rodium	9.70
	$391.80
Cost per fisher (excluding C.P. Express charges, Pembroke to Timmins).	$ 21.77

Daily Tally of Traps, Catch and Weather

Date	No. of Traps	Trap & Sites	Catch	Weather Data Max.	Min.	General
Feb. 26	9	6	3 Fisher	29	4	Clear
Feb. 27	11	6	2 Fisher, 1 Red Squirrel 1 Canada Jay	34	20	Overcast
Feb. 28	12	7	1 Fisher 1 Red Squirrel 1 Weasel	33	32	Overcast
Mar. 1	12	7	1 Fisher	35	31	1.6" of snow fell. Overcast.
Mar. 2	13	7	2 Fisher	36	30	Overcast, very light snow.
Mar. 3	13	7	nil	36	31	Overcast, wet snow & rain.
Mar. 4	17	11	1 Fisher	38	30	Overcast
Mar. 5	18	12	4 Fisher (1 escaped) 1 Marten	38	31	Overcast, trace of snow.
Mar. 6	15	9	1 Fisher	37	29	Overcast with snow.
Mar. 7	16	11	2 Fisher	33	22	Clear skies.
Mar. 8	20	14	1 Fisher	27	16	Overcast
Mar. 9	19	16	1 Fisher 2 Squirrels	32	18	Partly overcast

Conclusion and Observations

A total of 18 fisher were live trapped and shipped to the Cochrane District for distribution north. This involved a total of 175 trap days averaging 9.7 trap days per fisher.

The use of oil of rodium and other scents was thought unnecessary and never tried.

Most satisfactory results were obtained using the 32", 9 x 9 trap; the shorter 28", 9 x 9 was not quite as effective and several animals were missed. On one occasion a fisher broke out of the 28 inch trap while being transported in the truck to a holding pen. The 24", 6 x 6 trap was thought to be too small and for this reason was not used.

The number of sites trapped totalled 18 of which 10 produced fisher.

Of the 10 sites - 2 produced 3 fisher
- 3 produced 2 fisher
- 6 produced 1 fisher.

Sex Ratio of Fisher Caught

It was impossible to sex animals daily and a comparison of sexes taken by dates was not kept. At the conclusion of trapping operations the animals were ear tagged and tattooed. During this operation the animals were sexed. Animals taken included:

9 males	8 females	1 unsexed

PREDATOR CONTROL - WOLF POISONING
PORT ARTHUR DISTRICT
1957 - 1958

by
C. A. Rettie

In the fall of 1956 at a meeting of the Fish and Wildlife Staff of the Port Arthur District, it was decided to carry out some work on predator control. This work would consist chiefly of the poisoning of wolves in an effort to determine the best kind of bait, poison and type of set.

Previous to this some work on predator control was started in February, 1956. At this time a small yard of deer was located on the east side of the Nipigon River approximately 1 mile south of the Town of Nipigon. The snow at the Nipigon snow station on Feb. 20 and 21 was 34.1 inches. After the first visit to the yard, it was apparent that five or six wolves were active in the area and one deer carcass was found. Only a few bones and some hair were found. It was then decided to attempt to poison the wolves in an effort to save the deer.

About this time a doe had been killed by a car in the Port Arthur area. This carcass and some powdered strychnine was secured by Wildlife Management Officer Whitefield and brought to Nipigon. After this carcass was thawed out, it was taken to the deer yard by myself and Whitefield. Here the hams, stomach, shoulders and throat were slit, powdered strychnine inserted in the slits and the carcass placed ten feet from one of the trails used by the wolves in a small clearing.

This bait was observed at three-day intervals until the end of March. The wolves continued to use the beaten trail until March 15, but never once left it to examine the carcass which was in plain sight. However, three red foxes had visited the bait, eaten some from the slits and had died within 100 yards of the bait. Meanwhile, the wolves had driven another deer into the clearing, past the bait and had killed it 200 yards away. This carcass was cleaned up with only a few pieces of bone and some hair remaining. After March 15 there was no sign of wolf activity in the area and it was presumed that they had moved to a new location. At the end of March, with no sign of the wolves returning, the poisoned carcass was removed and disposed of.

No attempt was made at poisoning during the winter of 1956-57 by myself, but some work was carried on by the District Office Staff.

Plans were made that further work be done on predator control, especially the control of wolves by poison during the winter of 1957-58. With the beginning of the winter flying season by the Department aircraft at Port Arthur, the 1958 aerial moose survey commenced on January 7. Flying as an observer on these flights made it possible to note any sign of wolf activity. On January 13, a pack of 12 wolves was seen on Beatty Lake in the Black Sturgeon area. It was decided then to carry poison and bait on all future flights so that during our moose survey flights, poison could be placed at the same time and thus eliminate any special trips with the aircraft for this purpose.

For bait, several moose heads and some pieces of moose shank were obtained. The poison was the powdered strychnine which was used in 1956 but had been sealed in an airtight container. One moose head and three pieces of shank were carried on each flight from then on plus some water for freezing in the bait. Later some beaver carcasses and poison capsules were obtained, but no opportunity afforded itself for their use.

On January 17, an effort was made to fly a survey near Fraser Lake. However, the plot was not reached because of bad weather and the aircraft was forced to swing south over Nipigon Bay on Lake Superior. At Outan Island four wolves were seen close to shore. On the island were three moose. It was decided to try a poison set here. The site chosen for the set was beside some rocks protruding above the ice, approximately 200 yards from shore and past which the wolves were travelling on their circuit from Outan Island to Grange Island. This will be referred to later as set #1.

The moose head was frozen into the ice in a vertical position, nose up. The head was then slit wherever possible and strychnine sifted into the cuts. Around this head in a circle about twenty-five feet in diameter were placed the three small pieces of shank and these were frozen into the ice flush with the surface. These were also cut and the poison inserted. The bait was then left until it could be checked on some future flight.

On January 21, ice and snow conditions were such that it was possible to drive a car across Nipigon Bay fifteen miles to Grange Island. The bait was checked in this way. Although the head had not been touched, the smaller baits were gone. One fox track was still visible and this, a cross fox, was found dead on the ice 100 yards from the bait. Wolf tracks were plentiful in the area, but all had given the bait a wide berth.

On January 22, a flight was made to Outan Island. On this trip a moose killed by wolves was located on the southwest shore of the island. No sign of other moose could be found and it was believed that of the three moose seen here on January 17, two had been driven off by wolves and the third one killed. The site of the kill was checked and only a few bones, hair and skull remained. The lower jaw was intact and was aged as year class VII - sex unknown. Wolf sign was much in evidence.

Once again the same bait and type of set was used with the exception that a small balsam tree was also frozen into the ice, as a marker. The bait was placed about 100 feet from the scene of the kill, which the wolves were still visiting. This will be referred to as Set #2.

The following day, January 23, the aircraft passed over this location again, but no activity was noticed and so no landing was made.

Because of other commitments for the aircraft, it was impossible to check these sets again until February 14. On this date, Set #1 was untouched, but several tracks were seen at Set #2. On landing, these proved to be fox tracks, but no dead animals were found. The small baits were covered lightly with snow from the previous day and when uncovered were intact, but had apparently been licked by some animal. On our take-off a few ravens on the ice caught our attention and on investigating, two dead wolves were found. These were male and female and had been dead for some time. The stomachs of both had been eaten away by ravens. The wolves were lying 60 feet apart and approximately 3/4 mile from the bait on Outan Island. Following their tracks back, it was apparent that they had come from this Set #2 and must have received a lethal dose of strychnine by merely licking at the small baits.

The next check of the baits was made on March 7. At this time, one small red fox was found dead 10 feet from Set #2, one raven 20 feet from Set #2 and one large red fox 200 feet from the same set. One small bait was gone and the moose head itself seemed to have been licked this time. The moose head at Set #1 still remained untouched. No wolf tracks were located.

Checks were made again on both sets on March 12 and March 21. No animals were found on either occasion and again no wolf tracks were located in the area. These were the last checks made of the baits.

Conclusions

1. Timber wolves are very cautious and slow at investigating a bait.

2. Fox are very readily attracted to a bait.

3. Timber wolves prefer a fresh kill made by themselves to bait.

4. Wolves when molested will abandon one circuit and move to a new area.

5. Moose heads are not a good bait, but small pieces of moose meat are effective.

6. Baits should be visited once a week.

Acknowledgments

Many thanks to Pilot A. Burtt, G. Whitefield, D. D'Agostini, E. J. Swift, R. Carnahan and P. Nunan for their assistance in this work.

RACCOON HARVEST, LAKE SIMCOE DISTRICT, 1957-58

by
J. S. Dorland

The following is a record of the raccoon harvest taken in the Lake Simcoe District under the raccoon and dog licence during 1957-58.

These licences were sold only in nine of our 12 patrol districts. Of the 37 licences sold, 34 hunters made returns showing a harvest of 584 raccoons, or an average of 17.6 raccoons per hunter.

The number of hunters hunting raccoon under this licence has remained relatively the same for the past three years. This year's harvest, however, is down somewhat from the 1955-56 figure.

Although raccoons are fairly plentiful across our district, the harvest under this licence represents only a small fraction of the numbers we feel are taken by hunters who shoot them and leave them in the field.

Raccoon Harvest Under Licence, Lake Simcoe District, 1957-58.

Officer	No. Licences Sold	Returns Made	Harvest	Average No. Per Hunter
B. Smith	2	2	26	13
G. Armitage	10	9	268	29
J. Catcher	2	2	48	24
F. Bowes	2	-	-	-
N. Sitwell	4	4	3	-
E. Smith	2	2	48	24
H. Van Wyck	8	8	66	8
K. Turesdell	2	2	32	16
District Office	5	4	93	23
	37	34	584	17.6

MOURNING DOVE ROAD COUNT
LAKE ERIE DISTRICT - 1957

by
L. J. Stock

This is the second successive year in which Dove counts have been recorded in this District.

During 1956 counts were recorded only in September and may be compared to the September counts in 1957. The difference between the two years is due to the observances of very large flocks in 1956 and the scarcity of records from Essex County. Flocks of up to a 1,000 birds were noted in 1956, but in 1957 the maximum size was 40 to 50. In Essex County the birds per mile figure was 3.69 which is much greater than for any other part of the district.

In August there is a sharp rise in the percentage of birds in flocks and a corresponding, though smaller, reduction in pairs and singles. By mid-September there is a sharp reduction in the count in some sections, probably due to migration.

A substantial population of Doves remains in Essex and Kent throughout the winter. Flocks of up to 200 have been observed in mid-February.

Statistics for the 1957 Count are tabulated in the following table:

Statistics for the Mourning Dove Road Counts,
Lake Erie District, 1957.

	Number of Doves Seen								
	In Flocks 3 Or More		Pairs		Singles		Total	Total	Doves Per
Month	No.	%	No.	%	No.	%	Count	Miles	100 Miles
May	36	11	56	35	176	54	324	2303	14
June	14	9	39	50	63	41	155	515	30
July	27	11	60	46	111	43	258	1506	17
August	164	44	56	29	99	27	375	2099	18
September	188	50	41	22	104	28	374	1751	21
District Totals	429	29	252	34	553	37	1486	8174	18
Pelee Is. July	34	21	20	24	91	55	165	119	139
September 1956	2852	79	202	11	373	10	3629	5124	70.5
September 1957	188	50	41	22	104	28	374	1751	21

WETLAND WORK IN NEW YORK STATE

by
G. F. Boyer

New York may be regarded as the pioneer state along the Atlantic Flyway to engage in wetland development work. Today the state ranks among the highest in this type of waterfowl management. Co-operation with the State Conservation Department has been given by agencies such as the U. S. Fish and Wildlife Service and sportsmen's groups.

Some of the work carried out include detailed inventories of the existing wetlands by districts, construction of impoundments, "pot holes" and "paddys", the release of hand-reared ducks, for the most part mallards, but also some pintails, redheads and others. Work has been done to find ways and means of keeping impoundments from deteriorating and other projects such as banding have been carried out as part of the overall program.

As part of the general wetland aquisition program, the state already has 35,000 acres picked out and in use and it is felt that eventually 250,000 acres should be under state or federal control, not necessarily in ownership. This land would be improved for waterfowl production and migration usage.

Two of the important wetlands projects which I visited last summer were the Oak Orchard Refuge (450 acres) and the Perch River Development area (2,000 acres). These areas contain open water, marsh and flooded woodlands. The former is a refuge but "paddies" have been constructed nearby and public shooting will be allowed and the number of hunters will be regulated. Perch River will be used as a waterfowl production area and for public shooting under a controlled system. "Paddies" are also to be constructed here.

A word about "paddies". One which I examined was about 50 acres in area and was planted with grain crops such as barley. It consisted of a flat field, diked to hold about six inches of water. These areas are flooded in the fall so that ducks will flight in. The "paddies" will be drained after the spring migration and then replanted. An allotted number of hunters will be allowed in.

As part of breeding ground improvements, attempts are made to break up the shoreline and in general to provide attractive habitat for waiting areas for paired ducks. At Perch Lake this has been done by the construction of nesting islands and "pot holes" in addition to the already irregular outline of the flooded area.

"Pot holes" are small ponds of from one to five acres which are bulldozed out and are roughly two feet deep. They have no inlets or outlet. Usually nesting islands are constructed in these

ponds. At Perch Lake there was a large number of these scattered across a comparatively dry meadow near the impoundment. "Pot holes" are especially attractive to paired blue-winged teal, mallards and blacks. An important function is to give mated pairs seclusion out of sight of other pairs of the same species. In large open areas where the birds can see each other there is considerable strife and the amount of marsh or water required to support each pair is very large. This is a psychological aspect of behaviour. Other management practices employed on these two major developments were the erection of wood duck boxes and nest baskets for blacks and mallards.

In the case of wood ducks the erection of boxes needs little explanation as the beneficial results are well known. The nest baskets are a newer technique.*

In addition I visited several small marsh developments ranging from five to fifteen acres in area. Most of these were on private land and were operated under lease. They are put in at the request of the land owner and involve no loss of property rights.

The first area I visited was in the vicinity of Warsaw about 30 miles southeast of Buffalo. I was surprised at first to find that the impoundments were all on the heights of land. I had expected them to be down in the river valleys. The reason, of course, is simple. The drainage starts at the height of land, and in this part of the country the hilltops were usually very flat. It meant that a reasonably small dike could contain a large water area of very shallow depth and the spring run off would be at a minimum thus avoiding the dangers and destruction of flooding.

The primary purpose of these impoundments is to increase waterfowl production which results in improved shooting. Other benefits include water conservation and fishing opportunities. Many of the impoundments were stocked with species of pan fish.

Very little planting was found necessary as the native aquatics soon became abundant.

Often "pot holes" were constructed in conjunction with these impoundments. Many of the projects were constructed in areas which contained a certain amount of swampland. Wood duck boxes proved beneficial here.

As already mentioned an irregular shoreline is highly important to increase the number of nesters in an impoundment. "Potholes" are also most useful in adding to the seclusion for the paired birds.

Spillways on the dikes are necessary to prevent flooding should the concrete outlets become plugged. These outlets require some maintenance in keeping them clean of trash and from beaver

---

* See Duck Nesting Baskets by G. F. Boyer, Fish and Wildlife Management Report No. 41, June 1, 1958. pp. 27-28.

activities. Sometimes destruction is carried from muskrat burrows.

A good remedy was found in New York by emplacing sheets of gypsum board along the dikes above and below water level. Facings of gravel about ½ inch thick from water line to bottom are also useful. Installation is effective after damage has been done. Therefore, it is better to wait in case this form of maintenance is not found necessary.

WATERFOWL BREEDING GROUND SURVEY
IN ACCESSIBLE AREAS OF SIOUX LOOKOUT DISTRICT, 1958.

by
D. W. Simkin

On July 7, 8, 9, 11 and 12, 1958 flights were made over some of the areas which bear the brunt of waterfowl shooting in the fall. A total of 14 hours and 10 minutes were flown covering approximately 638 linear miles of shoreline.

Originally 4 large separate areas were to be sampled but due to a mechanical breakdown of the helicopter, modifications were made to get coverage of the areas deemed most productive and areas II and III were abbreviated.

I - Minnitaki Lake

This lake is generally an unproductive one even in relation to the rest of the lakes in this sparsely populated duck country. However, two areas namely the Rice River and English river areas of Minnitaki do get a fair amount of gunning pressure in the fall. It is believed that ducks shot during the fall are merely migrating ducks from the north lured into the area by the fair stands of wild rice in the area.

This assumption was proven to be correct upon completion of flying on the lake. The results were as follows:

TABLE I - Waterfowl Observations on Minnitaki Lake.

	American Merganser	American Goldeneye	Mallard	Black	Ring-neck	Unidentified
Male	4		2			
Female	14	6	8		2	
Sex ?	48	58	20	2	1	11
Broods	10	5	5		1	1
	Average size (5.9)	Average size (3.6)	Average size (2.8)		(2 ±)	(4) (4)
Total	125	82	54	2	6 ±	15
Grand Total	284					

Approximately 200 linear miles were flown on Minnitaki Lake; therefore 1.4 ducks were observed /mi.. If mergansers were excluded this figure would be reduced to .75 / mi..

Obviously the ducks hunted in the fall in the rice beds are produced elsewhere.

II - East End of Lac Seul and Smaller Waters East and North of Sioux Lookout.

These waters are not subjected to much hunting pressure but a flight in the area seemed in order to determine if this area fed the rice bed areas closer to town.

It can be seen from table II that this area is definitely not a big producer of waterfowl.

TABLE II - Waterfowl Observations E. End of Lac Seul and Waters E. and N. of Sioux Lookout

	American Merganser	American Goldeneye	Mallard	Black	Ring-neck	Unidentified
Male				1		
Female	4	5		1		
Sex ?	40	32	5	1		7
Broods	4	5				
Av. Size	5.5	5.2				
Total	66	63	5	3		7
Grand Total	144					

Approximately 200 linear miles were flown in this area; therefore, .72 ducks were seen / 1 mi.. If mergansers were excluded this figure would be reduced to .39 / mi..

III - Cedar Lake, Cliff Lake and Adjacent Lakes.

This area is similar to Minnitaki Lake, that is a fair population of ducks is hunted in the fall in local areas characterized by rice beds. A very low breeding population was found as shown in Table III.

TABLE III - Waterfowl Observations Cedar Lake, Cliff Lake and Adjacent Waters.

	American Merganser	American Goldeneye	Mallard	Unidentified
Male				
Female				1
Sex ?	11	14	3	7
Brood				3 ±
Grand Total	39			

Approximately 60 miles of shoreline were flown in this area; therefore .65 ducks were seen / mi.. If mergansers were excluded this would be reduced to .47 ducks / mi..

IV - Cedar River, English River System

This area was believed to be the most important waterfowl breeding area within the accessible portion of the district. Also it is here that most waterfowl hunting is done. The survey revealed a much larger breeding population of waterfowl here than in any other area flown.

TABLE IV - Waterfowl Observations Cedar River, English River System

	American Merganser	American Goldeneye	Mallard	Black	Ring-neck	Unidentified
Male		1			1	
Female	9	22	5		2	
Sex ?	93	115	23	2	19	36
Brood	9	22	5		1	
Average Size	7.5	5.1	6		2 1	
Total	170					
Grand Total	545					

Approximately 165 miles of shoreline were flown; therefore, 3.3 ducks were seen / mi.. If mergansers were excluded this figure would be reduced to 2.27 mi..

Undoubtedly this is our most important accessible breeding area. Also due to extensive areas of waterfowl food ripened by the fall this area does lure a good number of waterfowl to stop over during the hunting season.

TABLE V - Overall Waterfowl Picture

	American Merganser	American Goldeneye	Mallard	Black	Ring-neck	Unidentified
Male	4	1	2	1	2	
Female	27	33	13	1	5	1
Sex ?	192	219	51	5	27	61
Brood	23	32	10		3	2
Average Size	6.5	5	4.4		2.3	3.5
Total	372	414	120	7	41	69
No./mi. shoreline	.58	.65	.19	.011	.064	
Grand Total	1023					

The American Goldeneye appears to be the most common nesting waterfowl species in this area. From a shooters point of view the mallard is second in importance with ring-necks and blacks a poor 3rd and 4th respectively.

It is interesting to note the difference between brood sizes of Mergansers, Goldeneyes, and Mallards as observed at this time. These three species lay 8-12 eggs on the average but I believe due to the habits of ducklings of different species survival rates are higher in some species than in others.

The differences, I believe are as follows.

The American merganser is a bird of the more open, deeper water, even as a duckling. In this type of water the birds are not as susceptible to musky or pike predation as the mallard for instance. Also, when alarmed, merganser ducklings usually patter along the surface of the water rather than dive in contrast to the goldeneye. It is my belief that birds moving on the surface are less susceptible to fish predation than are birds which are swimming underwater. For these reasons the survival rate of mergansers is higher than other species in our pike and musky lakes of Sioux Lookout District.

The American goldeneye is also a bird of the open waters but not to the same extent as the American merganser. I believe young goldeneyes are more susceptible to predation by fish than the former species due to the habit of diving when danger approaches.

The Mallard is most susceptible to fish predation due to the habit of feeding in shallow weedy areas which areas are also excellent pike or musky habitat.

From the findings of this brief inventory I believe some conclusions can be drawn.

1. Local breeding birds add very little to the waterfowl hunters bag in this district.

2. Among game ducks sought by hunters the American Goldeneye is the most common breeder in this area.

3. Brood survival of pond ducks is not as high as in lake inhabiting diving ducks (ring-necks excepted due to small sample) probably due to the fact that few lakes are without pike or muskies.

4. To improve waterfowl hunting in this area the best place to aim a program would be in the direction of improvement of fall feeding areas. This would lure in the flocks of ducks from the northern muskeg areas and perhaps hold them around our hunted areas for longer periods of time during the hunting season.

Acknowledgments

Mr. Ben Kent the helicopter pilot for Dominion Helicopters was most cooperative and without his full cooperation this survey would not have been possible.

WATERFOWL CENSUS, WHITEFISH LAKE, PORT ARTHUR DISTRICT

by
Peter Nunan

Whitefish Lake is considered the best lake for duck hunting in the Port Arthur District. This is due to the abundance of wild rice, and many other aquatic plants giving good feed and shelter. The only other locations where ducks can be hunted with any amount of success are Hurkett, also known as Cranberry Bay, and in the vicinity of the elevators in Port Arthur and Fort William.

This census was started on September 14th with the opening day of hunting of Migratory Birds. On the opening day all hunters were checked and given census cards to fill in. Few hunters showed interest in filling in the cards, either on the lake after hunting or at home, for forwarding to the District Office. Approximately 10% of the issued cards were completed and returned to the Department.

The following information was obtained from census cards returned by hunters:

Species	Number Taken	Percentage Taken
Ring-neck	15	13
Scaup (Bluebill)	35	30
Mallard	22	19
Blacks	8	7
Goldeneye	9	8
Blue-winged Teal	19	17
Green-winged Teal Pintail Scoter Geese	7	6

The following is a sample card, including totals from all cards received from hunters:

Location - Whitefish Lake

Month - September 14 to
Day - December 15

Species	Number
Ring-neck	15
Scaup (Bluebill)	35
Mallard	22
Blacks	8
Goldeneye	9
Blue-winged Teal	19
Redhead	-
Bufflehead	-
Mergansers	-
Baldpate	-
Pintail	1
Scoter	1
Canvasback	-
Shoveler	-
Ruddy Duck	-
Wood Duck	-
Old Squaw	-
Gadwall	-
Green-winged Teal	3
Geese	2
Other	-
Coot	-
Other	-

Number in Parties 91

Hours Party Hunted 265

Gauge of Gun Used

12	16	20	28	410
89	9	1	1	1

Number of Shots Fired by Party 575

Weather:

Clear Raining
Cloudy Windy

Observations:

Remarks:

On the cards, the species of fowl most common in the Port Arthur District were shown at the top of the list with the less common species listed below. All waterfowl listed on the census cards have been taken in this District.

Average number of ducks taken per hunter 1.26
Average number of hours hunted per hunter 2.91
Average number of ducks taken per hour ..... .43
Average number of shots per hunter 6.32
Average number of shots per duck 5.00

The weather affected duck hunting as follows:

Weather Conditions	No. of Ducks Killed	Percentage of Ducks Killed
Clear	35	30.4
Raining	6	5.2
Cloudy	37	32.2
Raining and Windy	6	5.2
Cloudy and Windy	7	6.1
Clear and Windy	24	20.9

Conclusions:

1. It is planned to carry out this census again next year, when a greater effort will be made to have hunters fill out and return cards to Department staff.

2. Duck hunting is not the best in the Port Arthur District as many ducks are local stock, and leave feeding grounds for small ponds when hunting starts.

3. In this area we are not on a flyway, but it is thought that we get a cross flight to both the Atlantic and the Mississippi flyways. These ducks are both northern and local, funneling into their flyways toward winter feeding grounds. It is believed in this area that the diving ducks take the Atlantic flyway and the pond ducks the Mississippi.

4. Two Geese were reported killed from a flock of Snows and Blues that stayed over night.

Acknowledgments

Many thanks to Dr. A. E. Allin, District Pathologist, for his assistance in drawing up census cards and his theory on flyways. Thanks also to R. A. Ryder, District Biologist.

LAKE ERIE DISTRICT HUNTER BAG CHECKS

compiled by
L. J. Stock

Hunting Statistics 1957 - Part I

TABLE I - Hunter Success on Opening Day of the Pheasant Season.

	District Total	Welland and Lincoln	Haldimand	Essex and Kent	Central District
No. of Hunters					
Res.) ratio	210	58	56	96	
Non-Res.)	310	116	71	123	
Total Checked	642	233	127	219	63
Total Hours Hunted	1900	647	598	511	144
Total Cocks Shot - All Hunters	293	85	50	148	10
Cocks Per Hunter	0.46	0.37	0.39	0.68	0.16
Cocks Per Hunter Hour	0.15	0.13	0.08	0.29	0.02
Cripples Lost - Number	49	17	-	31	1
Percent of Total Shot	14	17	-	17	9
Game Observed - Cocks	701	285	126	381	35
- Hens	664	243	100	390	31
- Rabbits	258	65	-	145	48
Cocks Per Hen Observed	1.1	1.2	-	0.98	1.1
Cocks Per Rabbit Observed	2.7	4.4	-	2.6	0.73
Rabbits Observed Per Hunter - 278 by 515 hunters	0.54				
Parties Using Dogs - Yes	123	58	-	53	12
- %	40	63		60	46
- No	85	35		36	14

TABLE II - Hunter Success on the Opening Day of the Rabbit Season - Pheasants and Rabbits Both Allowed in the Bag.

	Pheasants					Rabbits				Pheasants & Rabbits	
	Seen			Shot		Seen		Shot		Shot	
No. of Hunters	Total Cocks	Total Hens	Per Hunter (Cocks)	Total	Per Hunter (Cocks)	Total	Per Hunter	Total	Per Hunter	Total	Per Hunter
186	70	98	0.38	38	0.20	101	0.54	47	0.25	85	0.46

TABLE III - Hunter Success - Upland Game Entire District - All Season.

	No. of Hunters	Total Hours Hunted	Total Bag	Bag Per Hunter	Bag Per Hunter Hour
Pheasants	986	2780	406	0.41	0.15
Rabbits (Cottontail & Hare) Shot during six day overlap of Pheasant and Rabbit season.	171	255	102	0.60	0.40
Cottontail (After close of Pheasant Season)	306	517	278	0.91	0.54
Hare (After close of Pheasant Season)	306	517	21	0.07	0.04
Squirrels	215	372	227	1.15	0.61
Hungarian Partridge	27	75	18	0.67	0.25
Bob-White Quail (Seen)	17		114	6.7	

TABLE IV - Hunting Success - Waterfowl, 1957
Summary for the Entire Season Less Opening Day.

	Long Point	Lake St. Clair	Inland Waters	District Total
No. of Hunters checked	355	148	85	540
Total Hunter Hours	1111	457	221	1789
Total Ducks Bagged	785	504	209	1498
Ducks Per Hunter	2.2	3.4	2.5	2.8
Ducks Per Hunter Hour	0.7	1.1	0.9	0.8
Cripples Lost	120	100	21	241
Percent Loss (of total shot)	13.3	16.5	9.1	13.8

Statistics for opening day were compiled and circulated in a separate report.

TABLE V - Separate Report of Shooting in Private Marshes
Long Point from Oct. 6 to Dec. 9
Turkey Point from Oct. 5 to Nov. 31

	Long Point	Turkey Point
No. of Hunters	200	88
Total Hunter Hours	800	460
Total Ducks Bagged	1400	637
Ducks Per Hunter	7.0	7.2
Ducks Per Hunter Hour	1.75	1.14
Cripples Lost		111
Percent Loss	5.0	14.8

Note: Hunters at Long Point numbered 4 or 5 each day.

Species bagged (Long Point) -	Mallard	350	Pintail	140
	Baldpate	140	Black	350
	Redhead	280	Canvasback	70
	Scaup	70		
Species bagged (Turkey Point -	Mallard	123	Pintail	61
	Shoveler	1	Baldpate	144
	Black	225	B.W. Teal	19
	B.W. Teal	6	Redhead	21
	Canvasback	26	Scaup	6
	Ruddy	5		

TABLE VI - Species Composition of the Bag for the Entire District All Season.

Species	Number Shot	Percent of Bag
Mallard	1403	27.5
Pintail	298	5.9
Shoveler	4	
Baldpate	523	11.3
Gadwall	45	0.9
Black Duck	1160	12.3
B.W. Teal	384	7.6
G.W. Teal	147	2.9
Wood Duck	68	1.3
Redhead	536	11.5
Canvasback	241	4.7
Scaup	200	3.9
Ringneck	3	
Goldeneye	12	
Bufflehead	5	
Ruddy	45	0.9
Mergansers	8	
TOTAL	5082	

Comments

On opening day non-residents outnumbered resident hunters three to two.

The number of cocks shot per hunter on opening day was more than double that shot the following Saturday when the rabbit season opened. However, pheasants and rabbits combined on the second Saturday provided exactly the same hunter success as pheasants on opening day and rabbits comprised slightly more than 50% of the bag.

The number of rabbits seen per hunter was exactly the same on the opening day of pheasant season as on the opening day of the rabbit season.

On October 26, 2.7 cocks were seen for every rabbit.

More rabbits were shot per hunter hour after the close of the pheasant season than during the pheasant shoot. In fact, the rabbit hunters shot as many rabbits throughout the entire season as they saw during the pheasant season. This indicates some hunter preference, and that while pheasant and rabbit ranges overlap, good pheasant range is not all good rabbit range.

It was a good year for cottontails. They provided good hunting for four months, and hunters averaged slightly more than one rabbit for two hours hunting.

Squirrels were relatively scarce in the bag at 1.15 per hunter, although plentiful in the woods. The season was late and cold, and inadequate numbers taken.

Hungarian partridge provided better hunting than the figure indicates. Eight coveys were reported by hunters; the total count was 100 birds - an average of 12.5 per covey.

The potential of the bob-white is indicated by the number seen per hunter (6.7).

Duck hunters in private marshes enjoyed much better shooting than those who hunted elsewhere. Many of the marsh owners and managers have erected a duck sanctuary in the marsh, and have restricted the number of hunters. They allow shooting on three or four days a week at specified hours. The result of this management is evident in the hunter success shown in Tables IV and V.

Hunting Statistics 1957 - Part II

Time and Miles of Travel to Check Pheasant Hunters

On October 26, the opening day of the pheasant season, 165 hunters were checked in 363 miles - an average of 2.2 miles per hunter.

On the same day 762 hunters were checked in 106 man-hours - an average of 7.2 hunters per hour.

During the remainder of the pheasant season (12 days) 163 hunters were checked in 1153 miles - an average of 7.2 miles per hunter and 96 miles per day.

After opening day it was necessary to travel almost three times as far to check the same number of pheasant hunters.

During the same 12 days, 498 hunters were checked in 262 man hours - an average of 1.9 hunters per hour. This is at the rate of almost 4 times the time required to check a hunter on opening day.

Cost of Checking Hunters

Based on a mileage cost of 10 cents a mile, two dollars per man hour and meals at two dollars per day per man.

October 26 - Opening Day of the Season

Hunters checked	165		
Miles travelled	363		
Mileage cost per hunter			0.22
Man hours of checking (762 hunters)	106		
Salary (@ $2.00 per hour)		212.00	
Meals (@ $2.00 per day)		27.00	
Total		$239.00	
Cost per hunter			0.31
Total cost per hunter checked			$0.53
Total cost per bird checked (0.46 birds per hunter)			$1.15

- Remainder of Pheasant Season (12 hunting days).

Hunters checked	163		
Miles travelled	1153		
Mileage cost per hunter			$0.72
Man hours of checking (498 hunters)	262		
Salaries (@ $2.00 per hour)		$524.00	
Meals (@ $2.00 per man day)		66.00	
Cost per hunter			1.18
Total cost per hunter			$1.90
Total cost per bird (0.4 birds per hunter)			$4.75

In the above expenses are included Conservation Officers working along or in pairs and the time of Deputy Conservation Officers. The latter are unpaid which fact will reduce the cost of checking. However, the time of the Deputies has not been segregated in this instance.

1956-1957 Statistics - Pheasants and Rabbits

PART I - Hunter Success - Pheasants only - Oct. 27-Nov. 2.

	Pheasants	Rabbits	Pheasants & Rabbits Total
Total hunters checked	1365		
Total hours hunted	2619		
Total cocks bagged	601		
Cocks bagged per hunter	0.44		
Cocks bagged per hunter-hour	0.24		

PART II - Hunter Success Nov. 3 only - Overlap of pheasant and rabbit season for one day.

Total hunters checked	467		
Total hours hunted	803		
Total bagged	398	226	604
Bagged per hunter	0.72	0.57	1.29
Bagged per hunter-hour	0.42	0.33	0.75

Above table includes combined figures for Essex, Kent, Lincoln and Welland only. Part I shows hunter success for the first six days of the pheasant season. Part II shows hunter success for the last day when both rabbits and pheasants were shot. Note that the pheasant success on the last day was almost double the average for the first six. Rabbit success is only 22% below the figure for pheasants. Rabbits and pheasants on the last day provided over three times the bag per hunter hour than did pheasants on the first six days.

Hunting Statistics 1956-57 - Pheasants

	Entire District	Kent & Essex	Lincoln & Welland	Haldimand
No. Hunters-Res.	1051	276	393	106
No. Hunters-Res.	1031	169	527	61
Total Hunters Checked	2088	445	920	167
Total Hours Hunted	4354	705	1924	740
Total Birds Bagged	1099	233	368	141
Cocks Seen but Not Shot	2731	515	1017	407
Hens Seen but Not Shot	3491	856	1383	161
Total Birds Seen	7321	1604	2768	709
Parties Using Dogs - Yes	453	85	220	43
- No	258	66	118	2
- Total	711	151	338	45
Percent Using Dogs	64	56	65	95
Cocks Bagged-Per Hunter	0.52	0.52	0.40	0.85
Cocks Bagged Per Hunter Hr.	0.25	0.33	0.19	0.19
Birds Seen Per Hunter Hr.				
- Cocks	0.88	1.06	0.77	0.74
- Hens	0.80	1.21	0.72	0.24
- Total	1.68	2.28	1.44	0.96
Cock/Hen Ratio (All birds seen)	1.1	0.87	1.07	3.40
Crippling Loss No. Hunters Reporting	1532	445	920	167
Total Hrs. Hunted	3369	705	1924	740
Total Birds Bagged	742	233	368	141
Total Birds Lost	89	17	36	36
Percent Birds Lost	10.7	6.8	8.9	20.3
Res. to Non-Res. ratio	1:1	1.6:1	0.75:1	1.74:1

	No. of Hunters Res.	No. of Hunters Non-Res.	Total Hrs. Hunted	Total Bag	Bag Per Hunter Hr.	Parties Using Dogs
Cottontail (not including Nov. 3)	126	83	551	67	0.38	45=50%
European Hare	244	189	823	74	0.09	
Squirrels	75	73	371	139	0.37	
Hungarian Partridge	17		59	11	0.19	5=100% Av. covey size=8

Cottontail

In area 1, Roy Muma continued his special project to obtain the total kill and the population index. A survey of 100 hunters resulted in the following information. Kill per acre 0.59; per sq. mile 378; total 114,553.

This represents an increased total bag over 1956 of 44 percent. Rabbits were abundant, hunting heavy, and conditions good. There is sufficient breeding stock for the coming season.

European Hare

In area 1, Roy Muma carried on a survey of 100 hunters to obtain the total kill and a population index. Results were as follows:-

Kill per licence sold 1.34; per acre 0.05; per sq. mile-32.

Hunting Statistics - Waterfowl, 1957 - Opening Day October 5.

1957	Long Point	Rondeau	Grand River	Welland County	Lake St. Clair	Essex County	District Totals
No. of Hunters Checked	188	168	84	90	34	311	875
Total Hunter Hours	1069	824	473	165	125	1553	4209
Total Ducks Bagged	462	344	205	46	176	314	1547
Ducks Per Hunter	2.4	2.0	2.4	0.51	5.2	1.0	1.77
Ducks Per Hunter Hour	0.43	0.42	0.43	0.36	1.4	0.22	0.37
1956							
Ducks Per Hunter Hour	0.98	0.59		0.54			0.57

Sex Ratios Mallard (287 birds) AM:AF - 1:1.6
Black (52 birds) AM:AF - 1.3:1

Production Mallard (287 birds) Juv:AF - 2.3
Black (52 birds) Juv:AF - 2.0

Hunters Using Dogs (68 parties reporting) 18%

Cripples Lost (percent of total shot) 10.4%

Species Composition of the Bag Entire District

	Number Shot	Percent of the Bag 1957	1956	Increase
Mallard	630	41	18	+ 23
Pintail	33			
Shoveler	1			
Baldpate	61			
Gadwall	43			
Black	313	20	23	- 3
B. W. Teal	292	19	45	- 26
G. W. Teal	88	5	9	- 4
Wood Duck	21			
Redhead	13			
Canvasback	10			
Scaup	38			
Ruddy	3			
Merganser	1			
TOTAL	1547			
Canada Goose	7			

Ducks bagged per hunter hour declined from 0.57 to 0.37. This was not due to a scarcity of birds, which were available in numbers equal to 1956, but to more widespread activities of the checking officers. Eight hundred and seventy-five hunters were contacted - an increase of 341 over the previous year. Included in this increase was a greater number of those who fired some 100 shells to bag one duck, and shot at all birds within sight regardless of range or species.

Generally, good hunters had a good bag as shown by the success on Lake St. Clair where the average bag was 5.2 birds. Essex County, Rondeau and Long Point also provided comparable shooting.

There was a marked change in the species comprising the bag. Mallards increased by 23 percent while B. W. Teal decreased 26 percent. These changes are in accord with the overall reports that the local hatch of mallards was good and that teal were relatively scarce on opening day.

KENORA DISTRICT CREEL CENSUS, 1957

compiled by
P. Graham

Introduction

A creel census was carried out by Conservation Officers and other members of the Fish and Wildlife Division during the 1957 fishing season. The method used was for Officers to check anglers, both while fishing and by means of road checks, during the performance of their regular duties. The results of the checks were entered on special cards. Unfortunately, due to different officers using different methods of estimating the average size, some used length, others weight, some estimated the size of the total catch and others only of those retained, this column could not be used in this compilation. A total of 12 cards of the 364 used were rejected because of incomplete information recorded on them.

By far the greater number of anglers checked (81%) were on the Lake of the Woods.

In all, 352 parties comprising of 1010 anglers were checked. Following Fraser (1957)*, the district has been divided into two sections, (1) the Lake of the Woods and (2) the Other Waters.

I - The Lake of the Woods

A total of 285 parties containing 837 anglers were checked on the Lake of the Woods. These anglers fished for a total of 2762.41 hours or a mean of 9.6 hours per angler. They caught 5604 fish giving an average of 2.02 fish per hour and 6.7 fish per angler. 5287 or 94.3% of these fish were of species regarded as game fish.

The anglers retained 3029 or 54.1% of all the fish they caught returning the rest to the water. Twenty-four parties (8.4%) were unsuccessful at the time of checking.

The average angler on the Lake of the Woods fished in a party of 2.93 anglers for 9.6 hours and caught 6.7 fish of which 94.3% were game fish at a rate of 2.02 fish per hour.

TABLE I -

No. of Anglers	No. of Hours	No. of Fish	No. of Game Fish	Percent of Game Fish	Fish/ Hours	Fish/ Anglers
837	2762.41	5604	5287	94.3	2.02	6.7

The catch comprised of eight species of fish of which five were game species.

---

* Creel Census - Kenora District, 1955. Fish and Wildlife Mgt. Report #37, October 1, 1957.

Walleye: This species is by far the most important in the lake. 3645 walleyes were taken by the anglers checked. This makes up 65% of the total catch checked. The anglers retained 2194 or 60.2% of walleyes caught in this lake.

Northern Pike: This is the second most important species in the lake forming 17% of the catch checked. 956 pike were checked and of these 497 or 52% were retained.

Maskinonge: Only three muskies were checked in this census and of these only one was of legal size and so retained.

Smallmouth Bass: This species formed 8.8% of the catch checked. 493 bass were checked and only 152 or 30.8% were retained. This species does not seem to be sought after in this lake.

Lake Trout: One hundred and ninety-one lake trout were caught by anglers checked. This makes only 3.4% of the total catch. Eighty-one or 46.8% of these were retained. Lake trout are not widely distributed in the Lake of the Woods and are caught mainly by anglers specifically fishing for them.

Others: Non game species formed 5.7% of the total catch, 317 of these fish were caught comprising of three species. Of these 198 were perch, 88 crappies and 31 saugers. A few perch and 86 crappies were retained.

It is possible that some of the walleyes retained were actually saugers, as many anglers cannot distinguish between these closely related species.

TABLE II - Species Caught

Species	No. Retained	No. Released	Total Checked	% Retained	% Total Catch	No./ Hrs.	No./ Anglers
Walleye	2194	1451	3645	60.8	65	1.31	4.36
Northern Pike	497	459	956	52.0	17	0.34	1.14
Maskinonge	1	2	3	33.3	0.05	-	-
Smallmouth Bass	152	341	493	30.8	8.8	0.17	0.58
Lake Trout	89	101	190	46.8	3.4	0.06	0.22
Others	96	221	317	30.3	5.7	0.1	0.37

II - Other Waters

The sample of anglers from other waters is less satisfactory. Only 67 parties comprising 173 anglers were checked.

These fished for 463 hours and caught 1037 fish. They had an angling success of 2.23 fish per hour and 5.99 fish per angler, which is not significantly different from angling success on the Lake of the Woods. The mean number of anglers per party was 2.58 almost the same as in the Lake of the Woods. The average time fished, however, was only 6.91 hours as opposed to 9.69 hours on the Lake of the Woods.

TABLE III -

No. of Anglers	No. of Hours	No. of Fish	No. of Game Fish	% of Game Fish	Fish/ Hours	Fish/ Anglers
173	463	1037	1027	99	2.23	5.99

Almost all fish caught in these waters were game fish. Six species were taken.

Walleye: This species was again the most important forming 37% of the total catch checked. Three hundred and eighty-nine walleyes were checked of which 226 or 58.1% were retained. This fish is of less importance in these waters than in the Lake of the Woods being partially replaced by lake trout as the most sought after fish.

Northern Pike: This fish is the second most important species in the catch with 300 checked making 28.9% of the total caught. Only 96 or 31.3% of these, however, were retained. This fish, therefore, does not seem to be sought after in these waters as much as in the Lake of the Woods.

Maskinonge: No maskinonge were checked in these waters.

Smallmouth Bass: Judging by the percentage of the total catch, i.e. 97 bass or 9.3% of the total catch checked, bass seemed to be much of the same importance in numbers caught in these waters as in the Lake of the Woods. However, since 57 bass or 58.4% of these were retained as opposed to 30.8% in the Lake of the Woods. Anglers fishing the smaller waters seem to find bass more desirable than those in the Lake of the Woods.

Lake Trout: In these waters the species is of much greater importance than in the Lake of the Woods, 241 being caught, forming 23.2% of the total checked, 121 or 50.2% were retained.

Others: Fishes other than game fish formed only 1% of the total in these waters. A total of 10 fish, 9 perch and 1 whitefish being caught. Three perch were retained.

TABLE IV -

Species	No. Retained	No. Released	Total Checked	% Retained	% Total Catch	No./ Hrs.	No./ Anglers
Walleye	226	163	389	58.1	37.5	0.84	2.24
Northern Pike	94	206	300	31.3	28.9	0.64	1.73
Maskinonge	0	0	0	0	0	0	0
Smallmouth Bass	57	40	97	58.8	9.3	0.2	0.56
Lake Trout	121	120	241	50.2	23.2	0.52	1.4
Others	3	7	10	30.0	1.4	0.02	0.05

Discussion

Since this method was used for the first time in 1957, the results are not strictly comparable to those obtained earlier by Fraser. (op. cit.).

The angler success in 1957 shown is double that shown by Fraser for 1954 and 1955, when only about one fish per hour was obtained by about 1230 anglers fishing for 7,500 hours. A higher percentage of bass and lake trout were recorded in the present census in all waters.

It is felt that though the number of anglers checked is smaller in the present method, it gives a better random sample of the fishing effort than do methods based on the return of questionnaires from guides, outfitters, etc. Also the previous method may only have taken into account those fish kept and not those released. If this is so, then the fishing effort becomes more comparable.

A CREEL CENSUS OF THE GULL BAY AREA, PORT ARTHUR DISTRICT, 1957.

by
C. A. Rettie

The area included in this census consists of an area of roughly 800 square miles immediately west of Chief Bay, Black Sturgeon Bay and Kaiashk Bay, more commonly known as Gull Bay, of Lake Nipigon and immediately north of the Great Lakes Concession of the Black Sturgeon area. All the network of lakes and streams drain eastward into Lake Nipigon.

The majority of lakes and streams are natural pickerel and pike habitat although lake trout and speckled trout are found in some waters. Smallmouth bass occur sparsely in Lake Nipigon and yellow perch are found in most of the lakes.

This area is accessible by one road only which leaves Highway 17 at Hurkett and runs in a northerly direction approximately 100 miles through the Black Sturgeon limits of the Great Lakes Paper Company, the limits of the Great Lakes Lumber and Shipping Company and ends at Jackinnes Lake. This road was constructed by these companies for their woodlands operations. In 1949 this area was closed to outside traffic by a gate, attended at all times by a watchman, located near the southern boundary of the Great Lakes Paper Company limits.

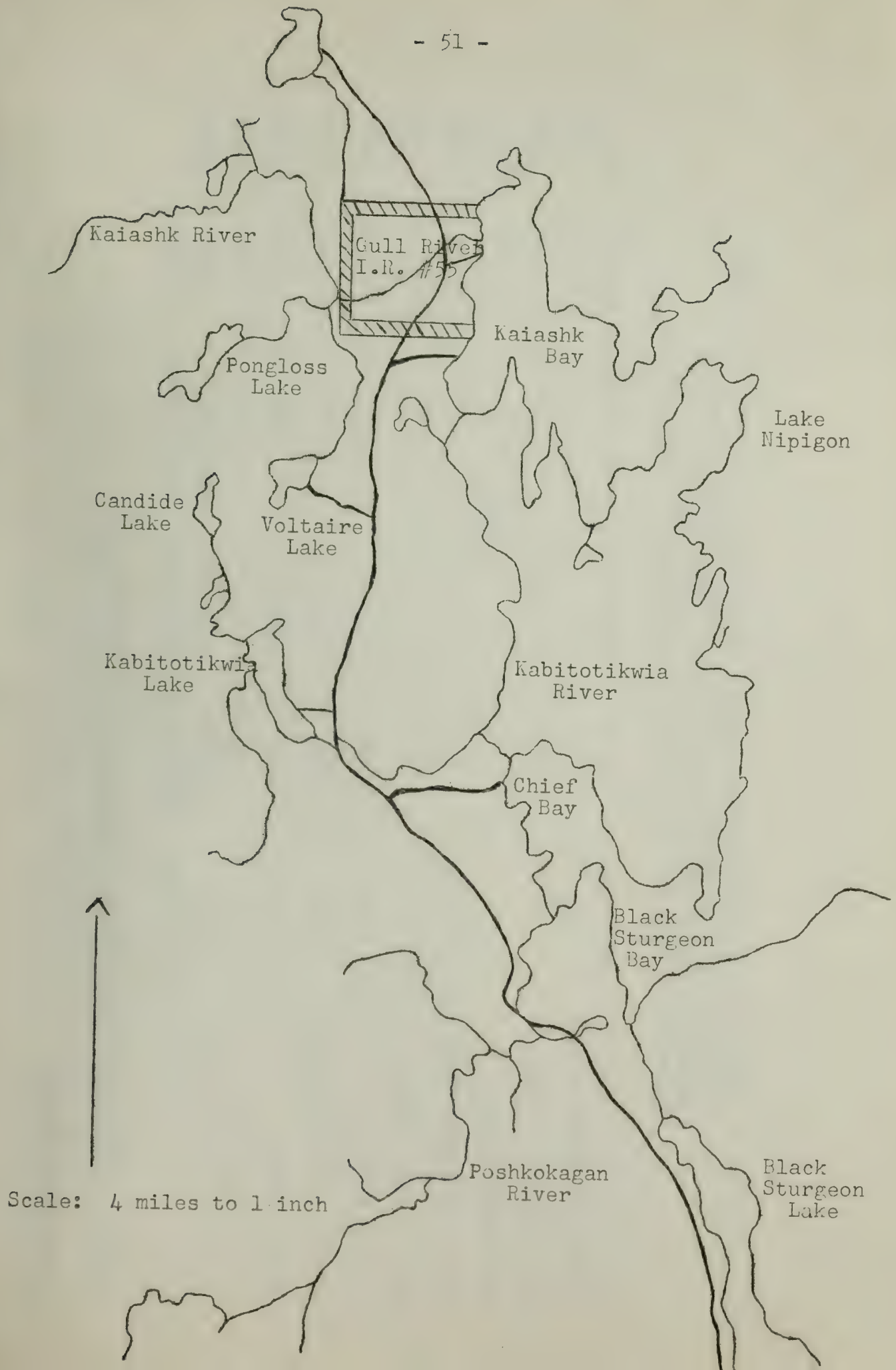
From 1949 to 1956 the only sportsmen in this area were a few of the woods workers who worked in the area camps plus a few outsiders who managed to find means of entrance. During the spring of 1956 the area was again open to the public and many people made use of this privilege. However, the majority of sportsmen chose to fish in the waters closest to the Highway, that is in the Great Lakes Concession of the Black Sturgeon area. Some continued north to fish the area included in this survey.

Since all persons entering this area must pass through the Great Lakes gate, every party of fishermen was given a creel census card for each day's fishing and each water to be fished. These cards were collected again on their departure. When all cards were collected and tabulated, we were able to separate the sportsmen who fished the Black Sturgeon area from those who fished the area included in this survey. It was found that in 1956 an insignificant number of fishermen entered this area and no report was made. However the number of fishermen in 1957 greatly increased making this census more representative of the area.

The object of the survey, as in the neighboring Black Sturgeon Creel Census was to determine catch-effort statistics, compare them over a period of years and by this determine the effects of fishing pressure in the area.

The first person to enter this area for the sole purpose of angling did so on May 17. Fishing was carried on all summer with little interference. Only for the period of 3 days were people refused admittance because of the high fire hazard. Those already in the area were allowed to remain and continue their sport. The survey ended on September 30.

A total of five waters including Lake Nipigon were reported as being fished. These are all waters that are accessible by car, being located along the main road or on logging roads close to the main road. Lake Nipigon is accessible at two points, one place at Chief Bay and the other at Gull Bay. No outfitters are present in this area so that all equipment and food must be transported in by the sportsmen. Therefore the boats used were all of the small outboard variety. Because of this the fishing in Lake Nipigon was confined largely to Gull Bay and Chief Bay with only a few of the more daring fishermen venturing out into the main lake.


Kaiashk River
Gull River I.R. #55
Kaiashk Bay
Pongloss Lake
Lake Nipigon
Candide Lake
Voltaire Lake
Kabitotikwia Lake
Kabitotikwia River
Chief Bay
Black Sturgeon Bay
Poshkokagan River
Black Sturgeon Lake
Scale: 4 miles to 1 inch

Results of Census:

TABLE I - Summary of Creel Census Cards, Gull Bay Area, 1957.

	Jackinnes Lake	Voltaire Lake	Poshkokagan River	Kabitotikwia Lake	Nipigon Lake	Totals
Total Fishermen	67	118	237	263	797	1482
Hours Fished	485	792	1360	1796	5102	9535
No. of Yellow Pickerel	285	139	514	920	866	2724
No. of Pike	352	144	680	1153	2692	5021
No. of Lake Trout		13			11	24
No. of Speckled Trout					63	63
No. of Whitefish					4	4
No. of Yellow Perch		1	17	1	15	34
No. of Smallmouth Bass					12	12

From Table I we see that yellow pickerel and pike made up the greatest portion of the catch with the catch of other species being almost negligible. Therefore in the following tables only the first two species will be considered.

TABLE II - Average Catch Per Angler, Gull Bay Area - 1957.

	Fishing Pressure (Percentage of Total Number of Hours)	Fishing Hours Per Angler	Average Number of Fish Per Angler	Average Number of Pickerel Per Angler	Average Number of Pike Per Angler
Jackinnes Lake	5%	7.3	9.5	4.2	5.3
Voltaire Lake	8%	6.7	2.4	1.2	1.2
Poshkokagan River	14%	5.7	5.0	2.2	2.9
Kabitotikwia Lake	19%	6.8	7.9	3.5	4.4
Nipigon Lake	54%	6.4	4.5	1.1	3.4
All Waters	100%	6.6	5.9	2.4	3.4

TABLE III - Fishing Success, Gull Bay Area - 1957.

	Fish Per Hour	Pickerel Per Hour	Pike Per Hour
Jackinnes Lake	1.3	0.6	0.7
Voltaire Lake	0.4	0.2	0.2
Poshkokagan River	0.9	0.4	0.5
Kabitotikwia Lake	1.2	0.5	0.7
Nipigon Lake	0.7	0.2	0.5
All Waters	0.9	0.4	0.5

TABLE IV - Fishing Success by Month, Gull Bay Area - 1957.

	Fishing Pressure (Percentage of Total Number of Hours)	Fish Per Angler	Pickerel Per Angler	Pike Per Angler	Fish Per Hour	Pickerel Per Hour	Pike Per Hour
May	4.8%	5.5	1.9	3.7	0.9	0.3	0.6
June	32.4%	6.1	2.2	3.8	1.0	0.4	0.6
July	15.2%	7.0	3.9	3.1	1.0	0.6	0.4
August	18.4%	4.0	1.1	3.0	0.6	0.2	0.5
September	29.2%	4.0	0.8	3.2	0.6	0.1	0.5

Comparison with other studies:

This study is the first of its kind in the Gull Bay area and therefore does not reveal much in itself. However it may be compared with the Black Sturgeon Creel Census of 1957* to determine the relative fishing success. Conditions in these two areas are similar although comprising two different watersheds.

* See Fish and Wildlife Management Report No. 40, April 1, 1958.

TABLE V - Comparison Table

	Black Sturgeon Area, 1957	Gull Bay Area, 1957
Fishing hours per angler	6.0	6.6
Average number of fish per angler	4.8	5.9
Average number of pickerel per angler	1.6	2.4
Average number of pike per angler	3.2	3.4
Average number of fish per hour	0.7	0.9
Average number of pickerel per hour	0.2	0.4
Average number of pike per hour	0.5	0.5
Fishing pressure May	5.4%	4.8%
Fishing pressure June	33.0%	32.4%
Fishing pressure July	32.2%	15.2%
Fishing pressure August	14.1%	18.4%
Fishing pressure September	15.2%	29.2%

From this table we see that the Gull Bay area had a slight lead over the Black Sturgeon Area per unit of effort although both sets of figures bear a close resemblance.

Acknowledgments

Many thanks are again due the Great Lakes Paper Company gatemen who distributed and collected all creel cards.

Conclusions

1. Pickerel and pike are the main species attracting anglers to the Gull Bay area.

2. Pickerel fishing may be considered only fair in this area, (0.4 pickerel per hour) with July being the best month (0.6 pickerel per hour) and September the poorest month (0.1 per hour). Jackiness Lake produced the most pickerel per hour with 0.6 fish.

3. Pike fishing may be considered only fair in this area (0.5 per hour) with May and June being the better months (0.6 per hour) and July the poorest (0.4 per hour). Jackinnes and Kabitotikwia Lakes produced the most pike per hour with 0.7 fish each.

4. All other species form only an insignificant part of the creel except in a very few individual catches.

5. Fishing pressure in this area is increasing greatly but I believe it may yet be classed as light. Many lakes are not fished at all because of the lack of access roads.

6. I believe future creel census in this area would be valuable as a check on fishing pressure and fish populations.

TABLE V - Comparison Table

	Black Sturgeon Area, 1957	Gull Bay Area, 1957
Fishing hours per angler	6.0	6.6
Average number of fish per angler	4.8	5.9
Average number of pickerel per angler	1.6	2.4
Average number of pike per angler	3.2	3.4
Average number of fish per hour	0.7	0.9
Average number of pickerel per hour	0.2	0.4
Average number of pike per hour	0.5	0.5
Fishing pressure May	5.4%	4.9%
Fishing pressure June	33.0%	32.4%
Fishing pressure July	32.2%	15.2%
Fishing pressure August	14.1%	16.4%
Fishing pressure September	15.2%	29.2%

From this table we see that the Gull Bay area had a slight lead over the Black Sturgeon Area per unit of effort although both sets of figures bear a close resemblance.

Acknowledgments

Many thanks are again due the Great Lakes Paper Company gateman who distributed and collected all creel cards.

Conclusions

1. Pickerel and pike are the main species attracting anglers to the Gull Bay area.

2. Pickerel fishing may be considered only fair in this area. (0.4 pickerel per hour) with July being the best month (0.6 pickerel per hour) and September the poorest month (0.1 per hour). Jackfish Lake produced the most pickerel per hour with 0.6 fish.

3. Pike fishing may be considered only fair in this area (0.5 per hour) with May and June being the better months (0.6 per hour) and July the poorest (0.4 per hour). Jackfish and Kabitotikwia Lakes produced the most pike per hour with 0.7 fish each.

4. All other species form only an insignificant part of the creel except in a very few individual catches.

5. Fishing pressure in this area is increasing greatly but I believe it may yet be classed as light. Many lakes are not fished at all because of the lack of access roads.

6. I believe future creel census in this area would be valuable as a check on fishing pressure and fish populations.

DEPT. LANDS AND FOREST
RECEIVED
OCT 6 1958
KEMPTVILLE